GROWetlands Report 2001

Summary of Massachusetts Wetland Restoration Projects Completed in 2001

April 2002

Wetlands Restoration Program

Executive Office of Environmental Affairs

Jane M. Swift, Governor
Bob Durand, Secretary
Christy Foote-Smith, Director

GROWetlands Report 2001

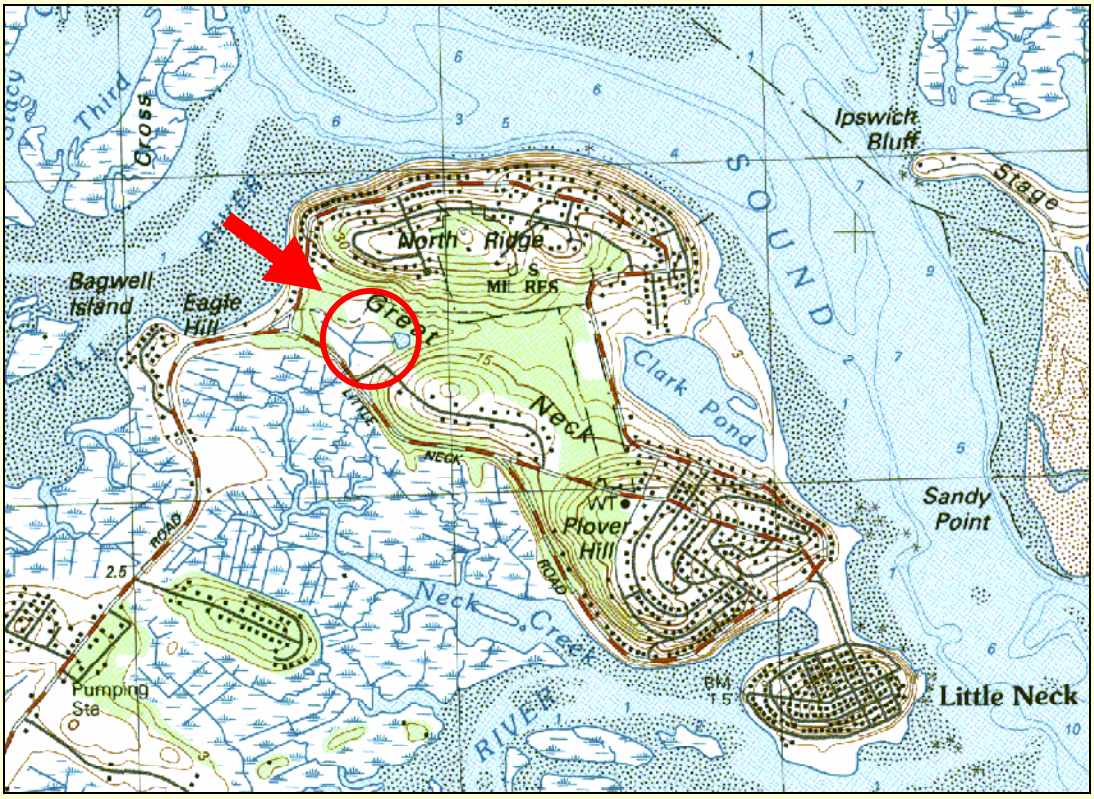
This document supplements the *2001 Progress Report* for the GROWetlands Initiative, also available in PDF format at www.mass.gov/envir/mwrp

Wetland Restoration Projects Completed in 2001

The following wetland restoration projects were constructed in 2001. Detailed summaries of each project are provided in this report:

Secretary of Environmental Affairs Bob Durand has adopted a goal of restoring 3,000 acres of wetlands by 2010.

Little Neck Road Salt Marsh Restoration, Ipswich



Location of Little Neck Road Salt Marsh

Little Neck Salt Marsh impounding freshwater upstream of collapsed culvert

Site Description: This six-acre marsh is part of the Parker River/Essex Bay Area of Critical Environmental Concern (also known as the Great Marsh) and is located in the Town of Ipswich. Little Neck Road restricted tidal flow to the marsh for decades. The situation was made worse when a culvert under the road collapsed, completely eliminating tidal flow. The salt marsh was essentially a brackish pond, as freshwater drainage was impeded by the blockage. Coverage of *Phragmites* increased, displacing native salt marsh vegetation.

Restoration Work Performed: With guidance and support from MWRP, the Ipswich Department of Public Works replaced the old 24-inch culvert with two four-foot wide arch culverts in May 2001, restoring tidal flushing into and out of the impaired marsh. The Natural Resources Conservation Service provided design and engineering services.

Ongoing Monitoring: Changes in tidal hydrology, soil chemistry, and vegetation resulting from increased tidal flow are being monitored by Salem Sound 2000's WHAT program and Mass. Audubon's Salt Marsh Science Initiative. In addition, MWRP is using the Little Neck project site as a pilot study area for field testing its own monitoring procedures. Monitoring through a combination of these efforts is expected to continue until at least 2006.

Acres Restored: Six

Project Cost: Approximately $37,000

Contributing Partners:

- Town of Ipswich
- Natural Resources Conservation Service

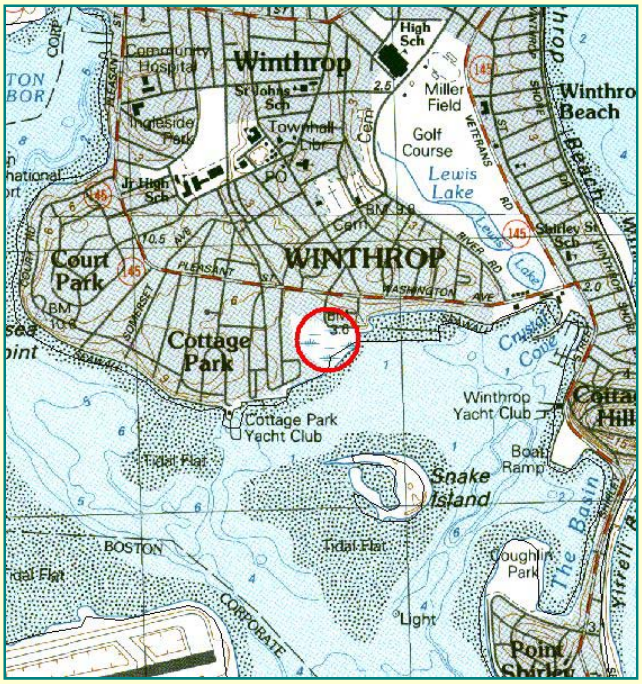
Others Supporting the Project:

- Eight Towns and the Bay
- Salem Sound 2000
- Massachusetts Audubon Society
- National Marine Fisheries Service
- The Trustees of Reservations
- Massachusetts Coastal Zone Management

Breaking Ground at Little Neck Road Restoration Site

Fisherman's Bend Salt Marsh, Winthrop

Fisherman's Bend salt marsh prior to restoration work



Location of Fisherman's Bend Salt Marsh

Site Description: This eight-acre salt marsh is located in the Town of Winthrop. Two crossings of the marsh (an abandoned sewer line and a walking path) restricted tidal flows to the marsh and obstructed fresh water runoff from leaving the marsh surface. As a result, large areas of the marsh were colonized by common reed (*Phragmites australis*), and the marsh developed a serious mosquito breeding problem. In addition, the marsh was covered with trash, from children's toys to illegally dumped tires and construction debris.

Fisherman's Bend restoration project under construction

Restoration Work Performed: The Town of Winthrop, with guidance and support from MWRP, organized and conducted a marsh clean-up involving dozens of local citizens, the majority of whom live in the vicinity of the marsh. Over 120 cubic yards of rubbish and debris and 70 tires were removed from the marsh. Following site clean up, the Northeast Massachusetts Mosquito Control and Wetlands Management District (NMMCWMD) mowed the *Phragmites*, breached the two tidal restrictions, and excavated perimeter ditches and several pannes on the marsh surface.

Ongoing Monitoring: Changes in tidal hydrology, soil salinity, vegetation, and mosquito breeding resulting from increased tidal flow are being monitored by NMMCWMD in conjunction with MWRP. The first post-construction monitoring effort was completed in the fall of 2001. Monitoring is expected to continue until at least 2004.

Acres Restored: Eight

Project Cost: Approximately $36,000

Contributing Partners:

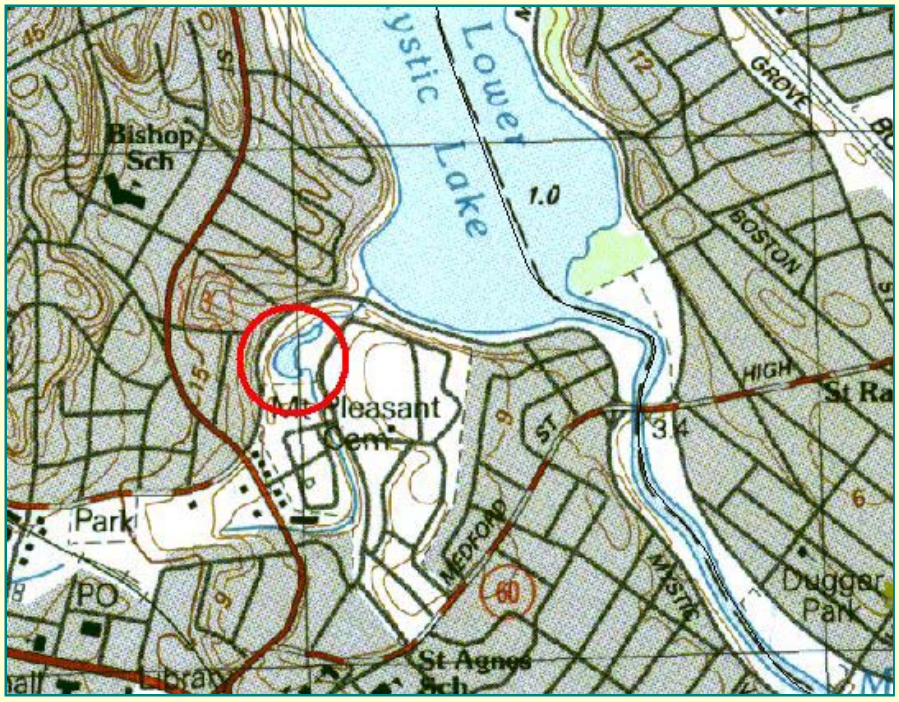
- Town of Winthrop
- NMMCWMD and Wetlands Management District
- US Fish & Wildlife Service, Partners for Wildlife Program ($7,000 grant)
- MWRP ($27,309 GROWetlands Grant)

Others supporting the project:

- National Marine Fisheries Service

Meadow Brook Park, Arlington

EOEA Assistant Secretary Sharon McGregor presents GROWetlands grant to Arlington town officials



Location of Meadow Brook Park

Site Description: Located near the Mount Pleasant Cemetery in Arlington, this freshwater emergent wetland borders Mill Brook, a perennial stream that supports an alewife run. The majority of this approximately 2-acre wetland was vegetated with a near monoculture of common reed, and the marsh topography was nearly flat. Historical evidence suggests that the marsh had at one time been a diverse shrub swamp, prior to the Town's flooding the marsh for winter ice-skating.

Restoration Work Performed: Restoration work performed at this site included herbiciding the stands of common reed, excavating portions of the marsh to create areas of deep marsh, placing the excavated material on areas of the remaining portions of the marsh to create areas that would support shrub swamp, and planting appropriate vegetation in the various wetland zones. The planting was performed entirely by volunteers, from girl scouts to elected Town officials and state employees.

Ongoing Monitoring: The Arlington Conservation Commission, in association with MWRP, is monitoring the vegetation community at this site, including the survival of the planted species and any regrowth of common reed. Monitoring is expected to continue until at least 2003.

Acres Restored: Two

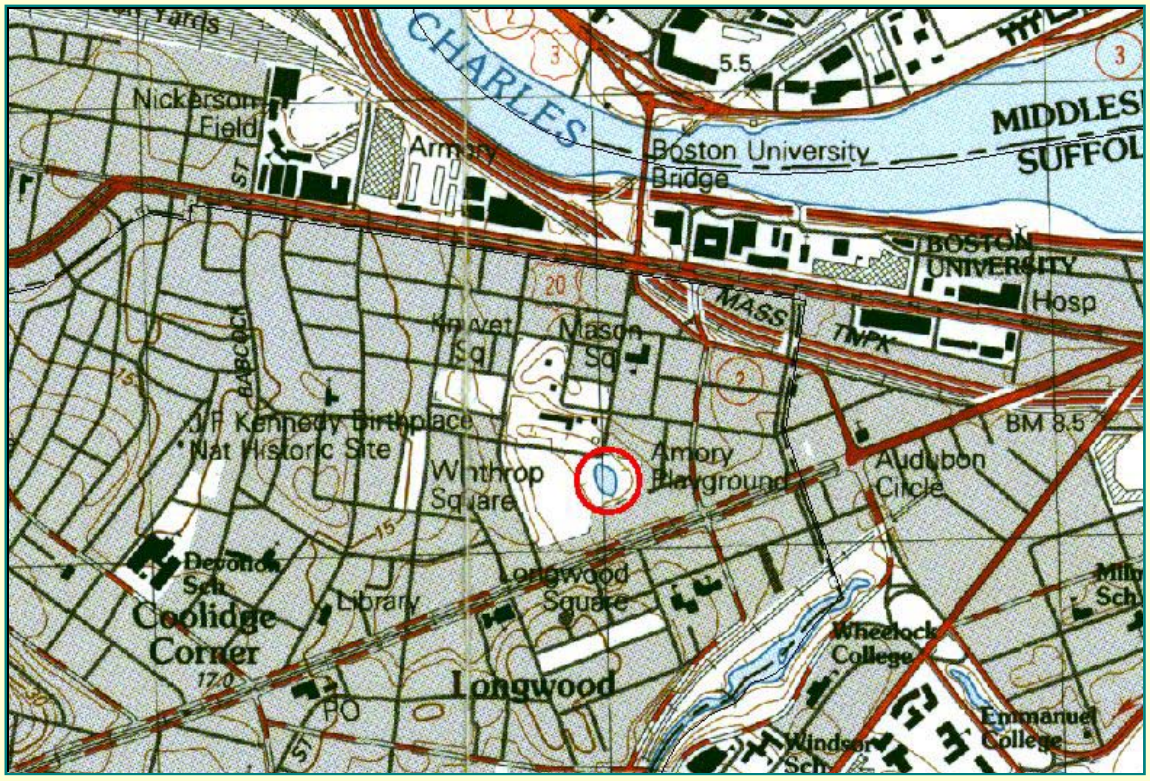
Project Cost: Approximately $125,000

Contributing Partners:

- Town of Arlington
- US Fish & Wildlife Service, Partners for Wildlife Program ($2,000 grant)
- MWRP ($33,600 GROWetlands Grant)

Meadow Brook restoration project under construction

Hall's Pond, Brookline



Location of Hall's Pond

Site Description: Hall's Pond Sanctuary is a remnant of the natural landscape of the Cottage Farm Historic District. It contains a one-acre pond, wooded wetlands, and a small marsh. Until well into the 20th century, the area around Hall's Pond was an ancient cedar swamp. Today, this 3.5-acre parcel provides a surprising range of habitats for animal species, especially songbirds, in a densely populated, urban environment. The pond is fed by stormwater runoff from a 107-acre watershed and, as a result, sediment and debris have been filling the pond degrading the water quality. Invasive, non-native vegetation has crowded out the original plants and reduced the number of tall trees that provided a natural canopy.

Restoration Work Performed: The Hall's Pond Restoration Project involved the installation of a new stormwater drainage system to control runoff entering and exiting the pond. The system is designed to direct the "first flush" of runoff into a sedimentation forebay, where the majority of sediments are deposited and routinely cleaned out. Water is then directed into the pond and through a newly created fringing marsh. Additional runoff, when present, bypasses the pond through a diversion pipe. This work was completed in 2001. Supplemental planting within the marsh area will continue in 2002. In addition, substantial invasive plant removal and landscaping with native plants was undertaken throughout the upland area surrounding the pond.

Ongoing Monitoring: The wetlands contractor will monitor the newly planted wetland vegetation for two years. School groups will monitor vegetation and wetland functions on an on-going basis.

Wetland Acres Restored: Just under 1 acre

Project Cost: Approximately $300,000

Contributing Partners:

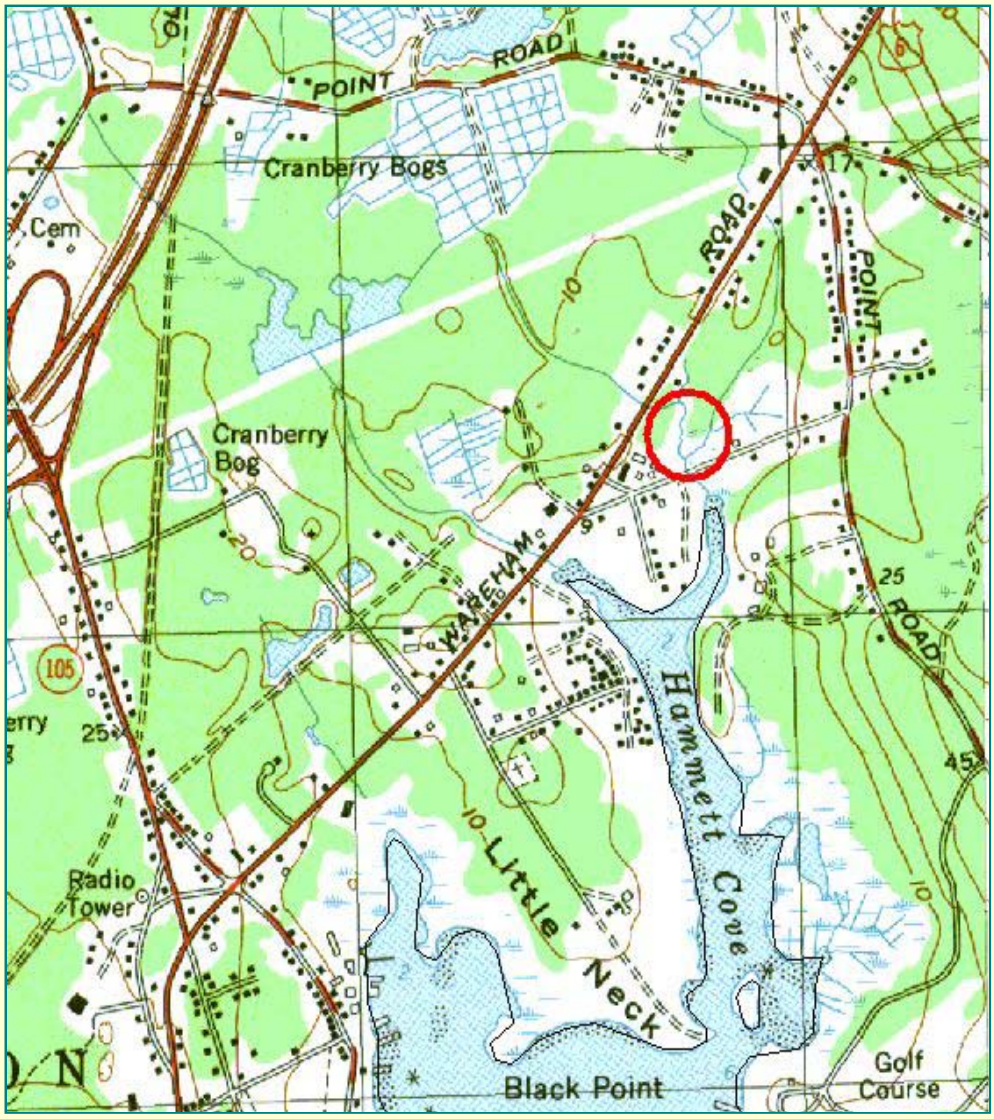
- Town of Brookline
- Commonwealth of Massachusetts
- Stoneman Family Foundation
- Natural Resources Conservation Service

Others Supporting the Project:

- Friends of Hall's Pond
- Massachusetts Audubon Society

Hall's Pond restoration project under construction

Hammett's Cove, Marion



Location of Hammett's Cove

Site Description: The upper six acres of the Hammett's Cove salt marsh is separated from the larger 46-acre Hammett's Cove salt marsh system by Creek Road. Prior to construction, an undersized, 30-inch culvert conveyed tidal flows to the upper reaches of the salt marsh. As a result of this restriction, woody vegetation had begun to encroach on the marsh and common reed replaced much of the diverse high marsh vegetation community.

Restoration Work Performed: As part of a suite of improvements to Creek Road, including the addition of stormwater basins and repaving, the Town of Marion replaced the tidal restriction with a 4-foot by 4-foot box culvert. The Town also removed some stones from the upgradient stream channel that were impeding tidal flows to the salt marsh.

Ongoing Monitoring: The Buzzards Bay Project is monitoring changes in vegetation on this marsh. Monitoring is expected to continue until at least 2003.

Acres Restored: Six

Project Cost: Approximately $35,000

Contributing Partners:

- Town of Marion
- Buzzards Bay Project
- MWRP ($15,200 GROWetlands Grant)
- US Fish & Wildlife Service (Partners for Wildlife Program grant)

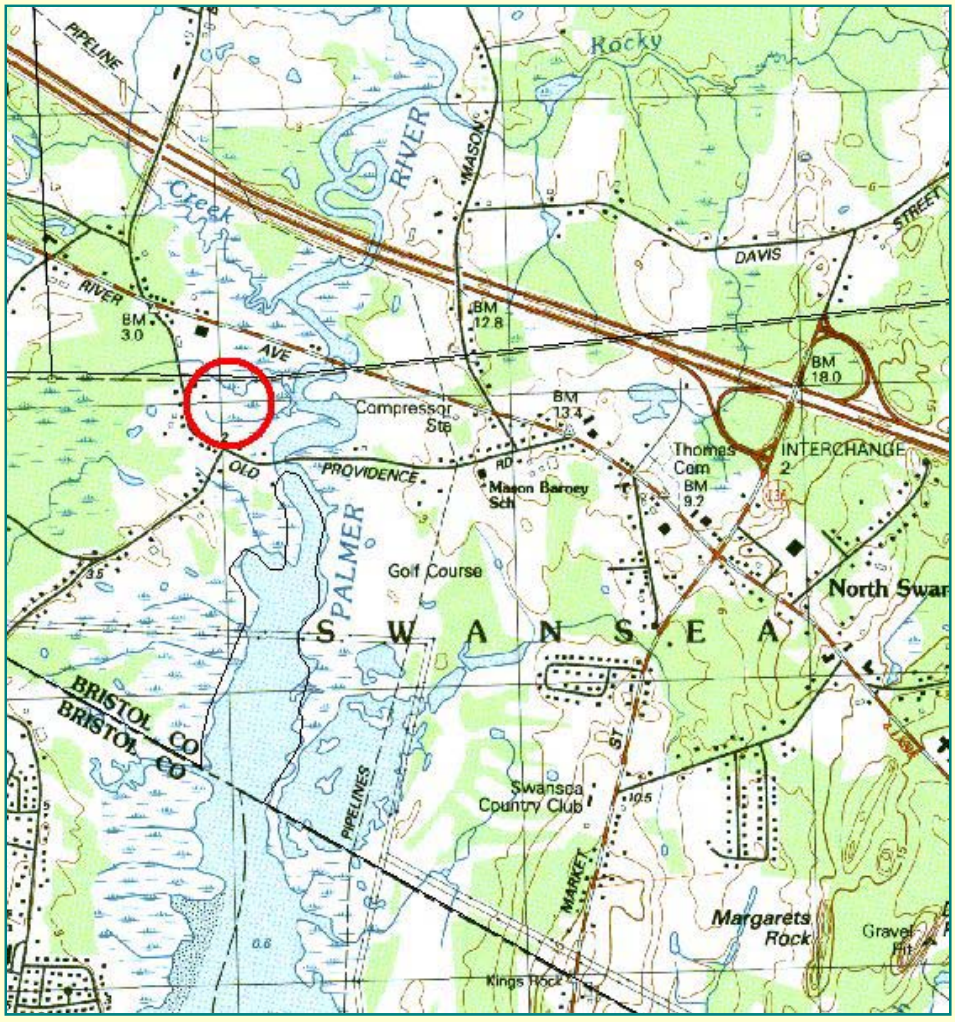
Others Supporting the Project:

- Sippican Lands Trust
- Natural Resources Conservation Service
- Buzzards Bay Watershed Team

Old culvert at Hammett's Cove

New culvert at Hammett's Cove

Barneyville Marsh, Swansea



Location of Barneyville Marsh restoration site

Site Description: This salt marsh bordering the Palmer River in the Town of Swansea is the historic location of the Barneyville Shipyard, a shipyard that constructed clipper ships. Prior to restoration activities, a stone culvert had collapsed in a dike that crosses the marsh, impeding the flow of tidal water to upgradient portions of the marsh. In addition, ditches that conveyed tidal waters to portions of the marsh had filled in and become overgrown with common reed, and extensive stands of common reed were located throughout this 20-acre marsh.

Work Performed: The Bristol County Mosquito Control Project mowed areas of common reed on the marsh, removed portions of the collapsed stone culvert from the dike, and cleaned and unblocked several of the most important ditches on the marsh.

Ongoing Monitoring: Massachusetts Coastal Zone Management and MWRP are monitoring changes in tidal hydrology. Save the Bay is monitoring changes in vegetation. Monitoring is expected to continue until at least 2003.

Acres Restored: 20

Project Cost: Approximately $17,000

Contributing Partners:

- Bristol County Mosquito Control Project
- Save the Bay
- Massachusetts Watershed Initiative, Narragansett Bay Watershed Team
- Coastal Zone Management

Others Supporting the Project:

- Town of Swansea

Barneyville Marsh after collapsed culvert was removed

Sagamore Marsh, Bourne/Sandwich

Sagamore Marsh prior to restoration work

Location of Sagamore Marsh

Site Description: Reconstruction of the Cape Cod Canal by the Army Corps of Engineers in the 1930s resulted in extensive impacts to the 360-acre Sagamore Marsh. Disposal of excavated and dredged material during construction resulted in filling of approximately 175 acres at the southern end of the marsh that became separated by a dike from the rest of the marsh. Dredged material in the diked area, along with the accretion of littoral material north of the Canal jetties, closed the tidal inlet from Cape Cod Bay into Sagamore Marsh. A 48-inch culvert was constructed to drain the marsh into the Canal. The culvert has restricted tidal flow over the past 70 years resulting in vast areas of *Phragmites*-dominated marsh.

Sagamore Marsh during construction

Restoration Work Performed: The US Army Corps of Engineers, in partnership with the Massachusetts Department of Environmental Management and MWRP, replaced the existing degraded 48-inch diameter reinforced concrete culverts beneath the Scusset Beach and the Cape Cod Canal service roads with two 6-foot high by 6-foot wide reinforced concrete box culverts, installed electric sluice gates for primary flow control with manual backup flow control at the gates, deepened the man-made channel which extends 1,100 feet north into the marsh from the canal, and widened the man-made channel from an existing bottom width of 4-feet to 12-feet. In order to avoid flooding impacts to adjacent homes, only 50 acres of the 175-acre site will be restored to full tidal flushing.

Ongoing Monitoring: The US Army Corps of Engineers is performing annual monitoring, including vegetation transects, salinity, and surface elevation. The USGS is monitoring water quality in nearby public water supply wells. A private contractor has been hired to perform an annual population survey for the four-toed salamander to ensure the project is not adversely impacting this state-listed species.

Additionally, **The Gillette Company**, through the Corporate Wetlands Restoration Partnership, has funded a study of soil sulfide development in the restored marsh. This research project is being conducted by Dr. Brian Howes through the School for Marine Science and Technology, University of Massachusetts Dartmouth.

Acres Restored: Fifty

Project Cost: $2,000,000

Contributing Partners:

- US Army Corps of Engineers
- Massachusetts Department of Environmental Management
- MWRP
- The Gillette Company (CWRP)

Groundbreaking at Sagamore Marsh